

Dr. Spyros KOUZOUPIS

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Education

- B.S., Physics, (1982), National and Kapodistrian University of Athens.
 - M.S., Physics, (1985), Case Western Reserve University, OH, (USA), (Thesis Advisor: Arthur H. Benade).
 - M.Eng. in Acoustics, (1990), Pennsylvania State University, (USA), (Thesis Advisor: Allan D. Pierce).
- Ph.D., (2001), Physics Division, Department of Mathematical, Physical and Computational Sciences, Faculty of Engineering, Aristotle University of Thessaloniki, Greece, (Thesis Advisor: A. Trochidis).

Appointments

2019-today: Assistant Professor, Department of Music Technology and Acoustics, Hellenic Mediterranean University, Crete, Greece.

2005-2019: Assistant Professor, Department of Music Technology and Acoustics, Technological Educational Institute of Crete, Rethymnon, Greece.

2001-2005: Teaching fellow, Department of Music Technology & Acoustics, Technological Educational Institute of Crete, Rethymnon, Greece.

1992-2001: Freelance Acoustical Consultant, Tobazi 3, 16675, Athens, Greece.

1991-1992: Physics Laboratory Instructor, Department of Physics/Chemistry and Materials Technology, Technological Educational Institute of Athens, Greece.

1991-1992: Physics Laboratory Instructor, Department of Physics/Chemistry and Materials Technology, Technological Educational Institute of Piraeus, Greece.

1992-2001: Acoustical Consultant, Intratech Ltd. (Innovative Technology Transfer Company), Mitseon 17, 11742 Athens, Greece.

1984-1985: Moore Plastics Company, Cleveland, OH. (USA), R&D Department, Acoustical measurements.

Research Projects (Coordination (C), Principal Investigator (SR), Participant (P))

- 2018-2020: CMBR, “Centre for the study and sustainable exploitation of Marine Biological Resources (CMBR)”, (P).
- 2017 -2020: **IoBee**, "Beehive health IoT application to fight Honey Bee Colony Mortality", 1 November 2017 - 30 April 2020 (P).
- 2016-2018: **REMOSIS**, "A novel smart trap station as an Internet of Things surveillance solution to remotely count and identify the species of disease-carrying mosquitoes", 1 Feb. 2016 - 31 Jan. 2018 (P).
- 2012 – 2015: “Sound production mechanisms of three fish species (sea bream, sea bass and zebrafish) and their sound scattering characteristics”, Archimedes III Program, in collaboration with the Department of Biology, University of Crete and with the Department of Information Technology & Multimedia, T.E.I. of Crete. Co-funded by the Greek Government and the European Union. Principal Investigator, (SR).
- 2014-2017: ENTOMATIC no. 605073, 7th FRAMEWORK PROGRAMME ON RESEARCH (FP7), with title: “Novel and stand-alone integrated pest management tool for remote count and bioacoustic identification of the Olive Fly (*Bactrocera Oleae*) in the field”. (P).
- 2010 – 2013: “AMIBIO – Automatic MonItoring of BIODiversity” (1/2/2010-30/6/2013), FP7 Life+. (P).
- 2007 - 2010: “PROMETHEUS - PRediction and interpretatiOn of huMan bEhaviour based on probabilistic sTructures and HEterogeneoUs Sensors” (2007-2010), ICT Call 1, FP7-ICT-2007-1. (P)
- 2004 – 2006: “Acoustic analysis, perception and synthesis of the female lyrical singing voice”, Coordinator, Archimedes II Program, in collaboration with the Department of Music Studies, University of Athens, Athens, Greece and the Department of Electrical/Computer Engineering of Aristotle University of Thessaloniki. Co-funded by the Greek Government and the European Union, (C).

Publications

- Christos G. Panagiotopoulos, Spyros Kouzoupis, “Tuning of idiophones using shape optimization on finite and boundary element 1D models”, *Applied Acoustics* 217 (2024) 109850.
- Christos G. Panagiotopoulos, Spyros Kouzoupis, Chrysoula Tsogka, “Computational vibroacoustic time reversal for source and novelty localization”, *Advances in Signal Processing for SHM and NDT. Signals* 2022, 3(4), 721-736; <https://doi.org/10.3390/signals3040043>
- Christos G. Panagiotopoulos, Spyros Kouzoupis and Angelos Kontos-Pantazis, VIBRO-ACOUSTIC NUMERICAL EXPERIMENT SETUP AND APPLICATIONS, 13th HSTAM 2022 International Congress of Mechanics, 24-27 August 2022, Patras, Greece.
- Christos G. Panagiotopoulos, Spyros Kouzoupis and Christina Inglezaki, BOUNDARY ELEMENT FORMULATION FOR ACOUSTIC DOMAINS

WITH DISSIPATIVE INTERFACES, 13th HSTAM 2022 International Congress of Mechanics, 24-27 August 2022, Patras, Greece.

- Σπύρος Κουζούπης και Χρήστος Παναγιωτόπουλος, “Εστίαση του ήχου σε αντηχητικό δονητικό-ακουστικό περιβάλλον με χρήση της χρονικής αντιστρεψιμότητας”, Ελληνικό Ινστιτούτο Ακουστικής, Ακουστική 2022, Θεσσαλονίκη 14-17 Οκτωβρίου 2022.
- Χρήστος Παναγιωτόπουλος, Σπύρος Κουζούπης, Αθανάσιος Κρουνερίτης και Άγγελος Κόντος-Πανταζής, “Βελτιστοποίηση σχήματος για τον σχεδιασμό ιδιοφώνων και πειραματική διερεύνηση”, Ελληνικό Ινστιτούτο Ακουστικής, Ακουστική 2022, Θεσσαλονίκη 14-17 Οκτωβρίου 2022.
- Spyros Kouzoupis, Andreas Neocleous and Irene Athanassakis, ‘Categorization of Mouse Ultrasonic Vocalizations Using Machine Learning Techniques’, *Acoustics* 2019, 1(4), 837-846.
- I. Potamitis, I. Rigakis, N.A. Tatlas and S. Kouzoupis, A novel electronic gate that identifies and counts bees based on their RGB backscattered light, 23rd International Conference on Circuits, Systems, Communications and Computers (CSCC 2019), Marathon Beach, Athens, July 14-17, 2019.
- Kouzoupis S., ‘Theoretical approach on the use of beams as musical idiophones’, Proceedings of the 9th HELINA Conference, (Hellenic Institute of Acoustics), University of Patras, 2018.
- Zervas P., Kouzoupis S. and Stefanakis N. ‘Evaluating a low-cost acoustic sensor for smart environments applications’, Proceedings of the 9th HELINA Conference, (Hellenic Institute of Acoustics), University of Patras, 2018.
- Kouzoupis Spyros and Potamitis Ilyas, “Flying insects wingbeat optically recorded waveform characteristics”, Proceedings of the 8th HELINA Conference, (Hellenic Institute of Acoustics), Piraeus University of Applied Sciences, 3-4 Oct. 2016.
- I. Potamitis, I. Rigakis, S. Kouzoupis, “Mass data acquisition and analysis of optical insects' wingbeat signals”, Advances in Mass Data Analysis of Images and Signals in Medicine, Biotechnology, Chemistry and Food Industry - 11th International Conference, MDA 2016, Proceedings.
- Kouzoupis Spyros, Tsagarakis Nikolaos, Potamitis Ilyas, “Plane wave underwater sound scattering from models of individual fish with swimbladders”, 23rd International Congress on Sound & Vibration, 2016.
- Kostas Kehrakos, Spyros Kouzoupis, Christos Chousidis, “An efficient method for extracting signing voice information using electroglottographic signal”, 23rd International Congress on Sound & Vibration, 2016.
- Kostas Kehrakos, Christos Chousidis, Spyros Kouzoupis, “A Reliable Singing Voice-Driven MIDI Controller Using Electroglottographic Signal”, 140th Convention of AES, Paris, 2016.
- Spyros Kouzoupis, Panagiotis Papadakis, Dimitris Sfakianakis, Maroudio Kentouri, Pascal Divanach, Ioannis Xezonakis, “Fish tank research facility for sound-video recording and sound emission experiments”, *UACE 2015*, 3rd

Underwater Acoustics Conference and Exhibition, Chania, Crete, Greece, 21 – 26 June 2015.

- Tsagarakis Nikolaos, Kouzoupis Spyros, “Educational examples in Structural Acoustics using the Finite Element Method”, *Proceedings of the 7th HELINA Conference*, (Hellenic Institute of Acoustics), Aristotle University of Thessaloniki, 20-21 Oct. 2014.
- S. Kouzoupis, P. Papadakis, G. Piperakis, “Preliminary investigation on the potential of using low power ultrasound to induce low frequency vibrations on an immersed object”, (*UAC 2014*) *Underwater Acoustics Conference*, Rhodes, Greece, 22-27 June 2014.
- P. Papadakis, G. Piperakis, S. Kouzoupis, “Calibration of ultrasound transducer heads using short preprocessed ultrasonic pulses”, (*UAC 2014*) *Underwater Acoustics Conference*, Rhodes, Greece, 22-27 June 2014.
- Kouzoupis S., Tripolitaki Z., Daskalaki N. and Papadakis P., «Custom made aquarium for the recording of fish sounds», 3rd Acoustic Ecology Conference, History Museum of the University of Athens, 28 - 30 June 2014 (in Greek).
- P. Papadakis, S. Kouzoupis and G. Piperakis, “On the generation of short ultrasonic pulses in medium size tanks”, (*UAM 2013*) *Underwater Acoustics Conference*, Corfu, Greece, 23-28 June 2013.
- A. Neocleous, S. Kouzoupis, I. Athanassakis, “Classification of Experimental Mice Ultrasonic Vocalizations Using Machine Learning Techniques”, 6th HELINA Conference, (Hellenic Institute of Acoustics), 8-10 Oct. 2012, Ionian University, Corfu, Greece.
- Tripolitaki Z., Daskalaki N., Kouzoupis S. and Papadakis P., ‘Fish sounds recording in small tanks and the characteristics of sounds in relation to the production mechanism’, 6th HELINA Conference, (Hellenic Institute of Acoustics), Ionian University, Corfu, 8-10 October 2012 (in Greek).
- S. Kouzoupis, and P. Papadakis, “Comparison of three swimbladder sound production mechanism models”, *European Conference on Underwater Acoustics (ECUA 2012)*, Edinburgh UK, 2nd - 6th July, 2012.
- S. Kouzoupis, T. Klisiaris and K. Tzedaki, “Melidoni cave stalactite acoustic analysis and sound modeling”, International Conference on Acoustic Ecology, World Forum for Acoustic Ecology, WFAE 2011: ‘Crossing listening paths’, Ionian University, Corfu, 3-7 October 2011.
- S. Ntalampiras, I. Potamitis, N. Fakotakis, and S. Kouzoupis, “Automatic Recognition of an Unknown and Time-Varying Number of Simultaneous Environmental Sound Sources”, ICEESD 2011: "International Conference on Ecosystems, Environment and Sustainable Development", Venice, Italy, November 28-30, 2011.
- S. Kouzoupis, and P. Papadakis, “Underwater sound production model from fish with swimbladders: Parametric analysis”, 5th HELINA Conference, (Hellenic Institute of Acoustics), 4-6 Oct. 2010, Athens, Greece, (Full text in Greek, Abstract in English).

- A. Neocleous, S. Kouzoupis, I. Athanassakis, “Categorization of the experimental mice ultrasonic vocalizations during the male-female intercourse”, 5th HELINA Conference, (Hellenic Institute of Acoustics), 4-6 Oct. 2010, Athens, Greece, (in English).
- Γ. Πέτρου και Σ. Κουζούπης, «Εύρεση του μέτρου ελαστικότητας υλικών με δυναμικές τεχνικές», Πρακτικά Συνεδρίου «Ακουστική 2010», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΕΜΠ, Εθνικό Μετσόβιο Πολυτεχνείο, Αθήνα, 4-6 Οκτ. 2010.
- S. Kouzoupis, and P. Papadakis, “Modeling the swimbladder sound producing mechanism of the Gilthead seabream (*Sparus aurata*)”, European Conference on Underwater Acoustics (ECUA 2010), Istanbul 5-9 July, 2010.
- Σ. Κουζούπης και Π. Παπαδάκης, «Φυσική μοντελοποίηση της παραγωγής του ήχου από τη νηκτική κύστη ψαριού του είδους: *Sparus aurata*», Πρακτικά Συνεδρίου «Ακουστική 2008», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΔΠΘ, Δημοκρίτειο Πανεπιστήμιο Θράκης, Ξάνθη.
- Ι. Οικονόμου, Μ. Αντωνόπουλος, Σ. Κουζούπης, «Τουρκικό και αραβικό νέι: Ακουστική προσέγγιση, κατασκευή και συντήρηση», Πρακτικά Συνεδρίου «Ακουστική 2008», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΔΠΘ, Δημοκρίτειο Πανεπιστήμιο Θράκης, Ξάνθη, σελ. 192-200.
- S. Kouzoupis, P. Papadakis, V. Boura, I. Xezonakis, M. Kentouri “Preliminary investigation on sound production by two fish species: *Sparus Aurata* and *Dicentrarchus Labrax*”. Proceedings of the Institute of Acoustics, vol. 29. Pt.3 2007, pp 225-232. Fourth International Conference on Bioacoustics, Holywell Park, Loughborough University, UK.
- M.A. Vassiliadis, C. Theochari, P. Georgiakakis, V. Boura, I. Athanassakis, S. Kouzoupis “Emotion transfer through transmission of vocal messages in mice”. Proceedings of the Institute of Acoustics, vol. 29. Pt.3 2007, pp 163-170. Fourth International Conference on Bioacoustics, Holywell Park, Loughborough University, UK.
- Σ. Κουζούπης, Π. Παπαδάκης, Α. Καρούσου Α., Β. Μπούρα, Ι. Ξεζωνάκης, Ρ. Divanach, Μ. Κεντούρη «Η παραγωγή ήχων από δύο εκτρεφόμενα είδη ψαριών (*Sparus Aurata* and *Dicentrarchus Labrax*). Πρακτικά συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 409-416.
- Μ.Α. Βασιλειάδη, Α.Θεοχάρη, Π. Γεωργιακάκης, Β. Μπούρα, Ε. Αθανασάκη, Σ. Κουζούπης. «Μεταφορά συναισθήματος μέσω εκπομπής ηχητικών μηνυμάτων». Πρακτικά συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 483-490.
- Σ. Κουζούπης, Π. Τατζίδης, Ε. Νικολίτσα και Κ. Παστιάδης, «Εκτίμηση του vibrato ως περιγραφικού δείκτη της γυναικείας φωνής σοπράνο», Πρακτικά Συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 261-268.
- Ε. Νικολίτσα, Σ. Κουζούπης και Κ. Παστιάδης, «Μελέτη της φωνητικής ποιότητας της τραγουδιστής φωνής της σοπράνο με χρήση της

ηλεκτρογλωττογραφίας». Πρακτικά Συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 255-260.

- Κ. Παστιάδης, Ε. Νικολίτσα και Σ. Κουζούπης, «Εκτίμηση και περιγραφή της ακουστικής διέγερσης στην τραγουδιστή φωνή όπερας, με χρήση ενεργειακών τελεστών». Πρακτικά Συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 269-278.
- Σ. Μπρέζας και Σ. Κουζούπης, «Οι χρόνοι ανόδου των αρμονικών από διάφορα μουσικά όργανα». Πρακτικά Συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Ηράκλειο Κρήτης, σελ. 225-230.
- Θ. Μαλιώτας, Γ. Νικολαΐδης και Σ. Κουζούπης, «Σύγκριση απωλεστικών κωδικοποιητών ψηφιακών ηλεκτροακουστικών σημάτων μέσω ψυχοακουστικού πειράματος». Πρακτικά Συνεδρίου «Ακουστική 2006», ΕΛ.ΙΝ.Α. (Ελληνικό Ινστιτούτο Ακουστικής), ΙΤΕ, Κρήτη, σελ. 491-496.
- S.Gymnopoulos, S.Kouzoupis, M.Bakarezos, J.Orfanos, M.Tatarakis and N.A.Papadogiannis., "Vibrational analysis of Greek string instruments top plates: Preliminary experimental results using mechanical and laser optical techniques". 2nd HEL.IN.A Conference, (Hellenic Institute of Acoustics) 27-28 Sept. 2004, Thessaloniki.
- S.Gymnopoulos, M.Bakarezos, S.Kouzoupis, A. Maragoudakis, M. Tatarakis and N.A.Papadogiannis, "Quality control of traditional musical instruments using laser interferometric techniques", LASER OLYMPICS 2004, Evgenidou Foundation, Athens, Greece, 15-17 October 2004.
- Σ. Κουζούπης και Α. Τροχίδης, «Βελτίωση της ηχομονωτικής ικανότητας διπλών χωρισμάτων με συνηχητές Helmholtz και συνηχητές μεμβράνης». 2ο Συνέδριο Ελληνικού Ινστιτούτου Ακουστικής, Σεπτ. 2004, Θεσσαλονίκη.
- S. L. Means, S. Kouzoupis, and A. D. Pierce., (1991), "Wave Theory of Fluid-Loaded Cylindrical Shells below the Ring Frequency", *Structural Acoustics*, NCA-Vol. 12: AMD-Vol. 128, pp. 235-242.
- H. Benade and S. Kouzoupis., "The clarinet spectrum: Theory and experiment", *The Journal of the Acoustical Society of America*, Vol. 83(1), pp.292-304, 1988.
- S. Kouzoupis and A. Trochidis., "Physical Modelling of Esophageal and Tracheoesophageal Phonation", *Proceedings of the 5th International Workshop on Mathematical Methods in Scattering Theory and Biomedical Technology*, Corfu, Greece, (Oct. 2001).
- S. Kouzoupis., "Propagation of elastic waves on thin cylindrical shells at frequencies below the ring frequency", *The Journal of the Acoustical Society of America*, Vol. 87, p.S163, Spring 1990.
- S. Kouzoupis and A.D. Pierce., "Extended Huygens-Kirchhoff method for predicting transient sound propagation through inhomogeneous moving media", *The Journal of the Acoustical Society of America*, Vol. 85 p. S81, Spring 1989.

- H. Benade and S. Kouzoupis., "Semi-empirical formula for the clarinet spectrum" *The Journal of the Acoustical Society of America*, Vol. 75, S17, Spring 1984.
- H. Benade and S. Kouzoupis., "Spectral envelopes of orchestral instruments". *The Journal of the Acoustical Society of America*, Vol. 78, S75 Fall 1985.